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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,465	03/24/2004	Guenther H. Ruhe	473-1us	2920

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EXAMINER	
WANG, BEN C	

ART UNIT	PAPER NUMBER
2192	

MAIL DATE	DELIVERY MODE
05/26/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,465	RUHE, GUENTHER H.	
	Examiner	Art Unit	
	BEN C. WANG	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,8-10,13-16,18 and 21-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 8-10, 13-16, 18, and 21-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 13, 2009 has been entered.

2. Applicant's amendment dated March 13, 2009, responding to the Final Office action mailed November 13, 2008 provided in the rejection of claims 1-2, 8-10, 13-16, 18, and 21-28, wherein claim 1 has been amended.

Claims 1-2, 8-10, 13-16, 18, and 21-28 remain pending in the application and which have been fully considered by the examiner.

Applicant's argument with respect to claims rejection for "*explicitly defining a set of constraints on the requirements*" has been fully considered but is moot in view of the new grounds of rejection – see *Aurum et al.* - art made of record, as applied hereto.

Applicant's other arguments with respect to claims currently amended have been fully considered but are not persuasive. Please see the section of "Response to Arguments" for details.

Claim Rejections – 35 USC § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 8-10, 13-16, 18, and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robin et al. (Pub. No. US 2005/0114829 A1) (hereinafter 'Robin') in view of Aurum et al. (*The Fundamental Nature of Requirements Engineering Activities as a Decision-Making Process", November 1, 2003, Elsevier, pp. 945-954*) (hereinafter 'Aurum' - art made of record) and Sönke Hartman (*A Self-Adapting Genetic Algorithm for Project Scheduling under Resource Constraints, 2002 by John Wiley & Sons, Inc.*) (hereinafter '*Hartman*')

4. **As to claim 1** (Currently Amended), Robin discloses a method of release planning (e.g., [0357] & [0362] – Create a multi-release plan), the method comprising:

- assigning stakeholder priorities to a set of requirements, where the priorities are assigned by plural stakeholders (e.g., Fig. 5, step 2 – Analyze & Prioritize; Fig. 25, Fig. 26, element of "Prioritized Risk List"; Fig. 25 – Risk Analysis and Prioritization; [0036] - ... risk analysis and prioritization paradigm that produces at least a prioritized risk list ...; [0134] - ... When all participants understand the shared vision and are working toward it, they can align their own decisions and priorities (representing the perspectives of their roles) with the broader team

purpose represented by that vision ...; [0191] - ... by focusing on the highest priority features first and moving less critical ones to subsequent releases; [0205] - ... by ranking and prioritizing risks ...; [0256] - ... Each stakeholder will have requirements or features that are important to them ... identifying the important stakeholders of the project, taking their needs into account ...)

Further, Robin discloses these exemplary data structures facilitate interaction among team members from one or more teams selected from those of an exemplary team model and across process phases of two or more process phases selected from those of an exemplary process model (e.g., Abstract), for example, the formula for the ranking value is calculated (e.g., [1206]) and focuses on the process and constraints of the project on important activities in the discipline of project management (e.g., [0296]) but does not explicitly disclose the limitations stated below.

However, in an analogous art of *The Fundamental Nature of Requirements Engineering Activities as a Decision-Making Process*, Aurum discloses explicitly defining a set of constraints on the requirements (e.g., Fig. 4 – Mapping the RE process model to classical decision-making models; Sec. 4 – Combination of Models - ... In order to better understand RE decisions, elements of both micro and macro decisions (i.e. Anthony's organizational decision making model and Mintzberg's managerial decision-making model) are projected onto Macaulay's RE process model, as shown in Fig. 4 ...; Sec. 3.2 – Macaulay's RE model, 2nd Para - ... feasibility and choice of options, is concerned with evaluating the costs and benefits of alternative solution and negotiations ... detailed analysis and modeling, is concerned with a more detailed

analysis of the requirements …; Sec. 4.1.2 – Management Control, 2nd Para – Problem analysis in RE involves clarifying an initial set of fuzzy requirements and generating some possible solution … the identification of alternatives, and assessment of the relative costs and benefits of each alternative …)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Aurum into the Robin's system to further provide the limitations stated above in the Robin system.

The motivation is that it would further enhance the Robin's system by taking, advancing and/or incorporating the Aurum's system which offers significant advantages that the quality of the software product is largely controlled by the quality of the development process used to create it; managing the RE (Requirements Engineering) phases is crucial to the successful development of software product as once suggested by Aurum (e.g., Sec. 1.1 – Motivation, 2nd Para)

Furth, Robin discloses each release plan solution of the set of release plan solutions (e.g., [0357] & [0362] – Create a multi-release plan) satisfying the constraints and balancing between stakeholder priorities of different stakeholders, and having a positive impact, measured by objective criteria (e.g., [0134] - … emphasizing the importance of understanding the project goals and objectives …; [0190] - Milestones are review and synchronization points for determining whether the objectives of the phase have been met …; [0739] - … each role has a unique perspective of the design and its relationship to their individual objectives, as well as the team's objectives …), on at least one of

project time, overall cost and quality (e.g., [0160] through [0161] - Invest in Quality: … quality can be seen … delivery, cost, and functionality …)

Furthermore, Aurum discloses examining the elements of organization-oriented macro decisions as well as process-oriented micro decisions in the RE process and illustrates how to integrate classical decision-making models with RE process models (e.g., Abstract) but Robin and Aurum do not explicitly disclose other limitations stated below.

However, in an analogous art of *A Self-Adapting Genetic Algorithm for Project Scheduling under Resource Constraints*, Hartman discloses generating a set of release plan solution using algorithms carried out by a computer for evaluation together (e.g., Abstract - … a new heuristic called self-adapting genetic algorithm to solve the RCPSP (resource-constrained project scheduling problem) … The heuristic employs the well-know activity list representation and considers two different decoding procedures …; Sec. 1 - Introduction, 1st Para - … the resource-constrained project scheduling problem (RCPSP) … an important task in project management is to schedule the project, i.e., to assign start times to the activities (*multiple schedules*) … makes use of heuristic scheduling algorithms for large projects; Sec. 4.1 –Test Design, 2nd Para - "… The self-adapting GA computed 1000 schedules for each project … and, in an additional run, not more than 5000 schedules … In that study, also 1000 and 5000 schedules were computed by each heuristic for each instance. This allows to evaluate the heuristics both in a short term and in medium term optimization …; Sec. 3 – Self-Adapting Genetic Algorithm; Sec. 3.1 – Basic Scheme, 1st Para – Genetic algorithms apply the principles

of biological evolution to solve optimization problems. They combine existing solutions in order to form new ones. Together with a survival-of-the-fittest strategy, this leads to successively better solutions for the problem to be solved)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Hartman into the Robin-Aurum's system to further provide other limitations stated above in the Robin-Aurum system.

The motivation is that it would further enhance the Robin-Aurum's system by taking, advancing and/or incorporating the Hartman's system which offers significant advantages that computational experiments show that the mechanism of self-adaptation is capable to exploit the benefits of both decoding procedures; moreover, the tests show that the proposed heuristic is among the best ones currently available for the RCPSP as once suggested by Hartman (e.g., Abstract)

5. **As to claim 2** (Previously Presented) (incorporating the rejection in claim 1), Robin discloses the method in which generating is carried out repeatedly after changing one or more of the constraints, requirements, objective criteria, or stakeholder priorities (e.g., [0188] - … The Process Model combines the benefits of milestone-based planning from the waterfall model with the incrementally iterating project deliverables form the spiral model)

6. **As to claim 8** (Previously Presented) (incorporating the rejection in claim 2), Robin discloses the method in which changing comprises actions chosen from a group consisting of:

- adding additional requirements;
- removing existing requirements;
- modifying existing requirements; and
- adjusting stakeholder priorities (e.g., Fig. 5, step 2 – Analyze & Prioritize; Fig. 25, Fig. 26, element of "Prioritized Risk List"; Fig. 25 – Risk Analysis and Prioritization; [0036] - ... risk analysis and prioritization paradigm that produces at least a prioritized risk list ...; [0134] - ... When all participants understand the shared vision and are working toward it, they can align their own decisions and priorities (representing the perspectives of their roles) with the broader team purpose represented by that vision ...; [0191] - ... by focusing on the highest priority features first and moving less critical ones to subsequent releases; [0205] - ... by ranking and prioritizing risks ...; [0256] - ... Each stakeholder will have requirements or features that are important to them ... identifying the important stakeholders of the project, taking their needs into account ...)

7. **As to claim 9** (Previously Presented) (incorporating the rejection in claim 2), Robin discloses the method further comprising the step of assigning the requirements to one of the next release, the next but one release, or unassigned (e.g., [0188] - ... The Process Model combines the benefits of milestone-based planning from the waterfall model with the incrementally iterating project deliverables form the spiral model)

8. **As to claim 10** (Previously Presented) (incorporating the rejection in claim 9), Robin discloses the method in which repeating the generation of a set of release plan solutions comprises using the unassigned requirements as the requirements in the next generation of a set of release plan solutions (e.g., [1817] - ... sets the default standard of priorities and provides guidance for making trade-offs throughout the project ...; [0299] - ... regarding the default priorities when making tradeoff decisions ... the main benefit of establishing default priorities is to help make the tradeoffs less contentious)

9. **As to claim 13** (Original) (incorporating the rejection in claim 1), Robin discloses the method in which the set of constraints is chosen from a group consisting of precedence relationships between requirements, coupling relationships between requirements, effort, resource, budget, risk, and time (e.g., Fig. 11; [0294] - .... A relationship between the project variables of resources (people and money), schedule (time), and features (scope) ...)

10. **As to claim 14** (Original) (incorporating the rejection in claim 1), Robin discloses the method in which stakeholder priorities are represented by a numerical value representing stakeholder satisfaction that a requirement be assigned to one of three categories, the categories consisting of the next release, the next but one release, and postponed (e.g., [0036] - ... risk analysis and prioritization paradigm that produces at least a prioritized risk list, deactivated risks, and one or more risk statement forms; [0134] - ... priorities (representing the perspectives of their roles) ...; [0191] - ...

focusing on the highest priority features first and moving less critical ones to subsequent releases)

11. **As to claim 15** (Original) (incorporating the rejection in claim 1), Robin discloses the method in which the requirements are grouped into groups of requirements (e.g.,) and the algorithms balance between stakeholder priorities assigned to the groups of requirements (e.g., [1206] - … a weighted prioritization matrix that factors is not only probability and impact, but critical time window and cost to implement an effective control … where the formula for the ranking value is calculated using the formula …)

12. **As to claim 16** (Original) (incorporating the rejection in claim 1), Robin discloses the method in which stakeholders prioritize subsets of the complete set of requirements (e.g., [1206] - … a weighted prioritization matrix that factors is not only probability and impact, but critical time window and cost to implement an effective control …)

13. **As to claim 18** (Previously Presented) (incorporating the rejection in claim 1), Hartman discloses the method where a set of near optimal and maximally distinct alternative release plan solutions is generated (e.g., Abstract - … a new heuristic called self-adapting genetic algorithm to solve the RCPSP (resource-constrained project scheduling problem) … The heuristic employs the well-know activity list representation and considers two different decoding procedures …; P. 5, 1st full Para - … While the set of the active schedules always contain an optimal schedule …; 2nd full Para - ... Many activities and scarce resources imply larger search spaces, where the focus on

compact, but often only suboptimal non-delay schedules is a promising heuristic strategy. Longer computation times may allow to find an optimal or a near optimal solution ...)

14. **As to claim 21** (Previously Presented) (incorporating the rejection in claim 1), please refer to claim **1** as set forth above accordingly.

15. **As to claim 22** (Previously Presented) (incorporating the rejection in claim 1), please refer to claim **1** as set forth above accordingly.

16. **As to claim 23** (Previously Presented) (incorporating the rejection in claim 1), Hartman discloses the method in which the constraints comprise a measure of resource consumption (e.g., Sec. 4.4 - Behavior of the Self-Adapting Genetic Algorithm, 2nd Para - ... this parameter measures the availability of the resources ...)

17. **As to claim 24** (Previously Presented) (incorporating the rejection in claim 1), Robin discloses the method further comprising selecting at least one release plan solution from the set of candidate release plan solutions based on the positive impact of the at least one release plan solution (e.g., [0357] & [0362] – Create a multi-release plan)

18. **As to claim 25** (Previously Presented) (incorporating the rejection in claim 24), Hartman discloses the method in which the algorithms comprise one or more of genetic

algorithms, heuristic algorithms and integer programming algorithms (e.g., Sec. 3 – Self-Adapting Genetic Algorithm; Sec. 3.1 – Basic Scheme, 1st Para – Genetic algorithms apply the principles of biological evolution to solve optimization problems. They combine existing solutions in order to form new ones. Together with a survival-of-the-fittest strategy, this leads to successively better solutions for the problem to be solved)

19. **As to claim 26** (Previously Presented) (incorporating the rejection in claim 25), Hartman discloses the method in which the algorithms use at least one objective function to evaluate release plan solutions (e.g., Sec. 2 – The Resource-Constrained Project Scheduling Problem, last Para - … to determine a schedule with minimal make-span such that both the precedence and resource constraints are fulfilled. A mathematical programming formulation ….)

20. **As to claim 27** (Previously Presented) (incorporating the rejection in claim 26), Robin discloses the method in which the objective function comprises an aggregation of stakeholder priorities or value estimates (e.g., Fig. 5, step 2 – Analyze & Prioritize; Fig. 25, Fig. 26, element of "Prioritized Risk List"; Fig. 25 – Risk Analysis and Prioritization; [0036] - … risk analysis and prioritization paradigm that produces at least a prioritized risk list …; [0134] - … When all participants understand the shared vision and are working toward it, they can align their own decisions and priorities (representing the perspectives of their roles) with the broader team purpose represented by that vision …; [0191] - … by focusing on the highest priority features first and moving less critical ones

to subsequent releases; [0205] - ... by ranking and prioritizing risks ...; [0256] - ... Each stakeholder will have requirements or features that are important to them ... identifying the important stakeholders of the project, taking their needs into account ...)

21. **As to claim 28** (Previously Presented) (incorporating the rejection in claim 27), Robin discloses the method in which computation of the algorithms is carried out externally from an application service provider, and stakeholder priorities are input to the computer from remote locations (e.g., [0084] - ... facilitating the process of designing and developing a project ... be practiced in distributed processing environments where tasks are performed by remotely-linked processing devices that are connected through a communications link and/or network ...; [0095])

Response to Arguments

22. Applicant's arguments filed on March 13, 2009 have been fully considered but they are not persuasive.

In the remarks, Applicant argues that, for examples:

(A.1) The applicant does not concede that the provisional supports the non-provisional (recited on page 5, last second paragraph in the REMARKS/ARGUMENTS)

(A.2) *Hartman* does not deal with release plan solutions (recited on page 6, third paragraph in the REMARKS/ARGUMENTS); moreover, *Hartman* produces a single

schedule, and dos not teach generating anything let alone a set of release plan solution (recited on page 6, fourth paragraph in the REMARKS/ARGUMENTS; emphasis added)

Examiner's response:

(R.1) Firstly, applicant should mainly argue the content of *Robin* prior art reference with the claim limitations instead of its provisional documents. Secondly, for a sake of argument, since the provisional document contains both drawings and specifications and accommodates large volume of information (529 pages in total), applicant should articulate certain issues/points why the provisional does not support the non-provision (emphasis added)

(R.2) *Hartman* considers the resource-constrained project scheduling problem (RCPSP) and discloses an important task in project management is to schedule the project, i.e., to assign start times to the activities (*multiple schedules*) and further makes use of heuristic scheduling algorithms for large projects (e.g., Sec. 1 – Introduction, first paragraph); Further *Hartman* proposes a genetic algorithm (GA) for the RCPSP (e.g., Sec. 1, second paragraph) And, furthermore *Hartman* teaches "… The self-adapting GA computed 1000 schedules for each project … and, in an additional run, not more than 5000 schedules … In that study, also 1000 and 5000 schedules were computed by each heuristic for each instance. This allows to evaluate the heuristics both in a short term and in medium term optimization …" (e.g., Sec. 4.1 – Test Design, second paragraph; emphasis added)

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben C. Wang whose telephone number is 571-270-1240. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ben C Wang/
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Examiner, Art Unit 2192

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